Eric A. Wernert

Indiana University
University Information Technology Services
2711 East 10th Street
Bloomington, IN 47408-2671
(812) 856-4911
ewernert@indiana.edu

2912 Kings Court
Bloomington, IN 47401
(812) 333-9631

EDUCATION

Indiana University, Bloomington, IN.
Ph.D. , Computer Science, December 2000.

- ◊ Advisor: Dr. Andrew J. Hanson,
- ◊ Thesis Committee: Dr. Geoffrey Bingham, Dr. Randall Bramley, Dr. Dennis Gannon, Dr. Michael McRobbie
- ◊ Minor: Cognitive Science

Indiana University, Bloomington, IN.
M.S., Computer Science, May 1991.

Bellarmine College, Louisville, KY.
B.A., Mathematics, Computer Science, & Secondary Education, May 1985.

- ◊ graduated *summa cum laude*

DISSERTATION

A Constrained Navigation Framework for Individual and Collaborative Exploration of 3D Environments. This dissertation describes the conceptual and mathematical framework for a family of methods designed to reduce the complexity and increase the effectiveness of navigation interfaces for interactive 3D environments. It covers techniques for both single user and multi-user tele-collaborative environments. The dissertation illustrates the applicability of these methods to a range of applications, and details frameworks for broader implementation and objective evaluation.

RESEARCH INTERESTS

My research interests center around the effective use of advanced displays and interactive rendering technologies to address the real-world needs of scientists, researchers, artists, and educators. My early academic work focused on methods for graphics algorithm visualization and effective presentation of procedural information, while early professional work centered on the development of applications and scalable methods for displays ranging from high-end virtual reality displays down to web browsers. My recent work focuses on the effective integration of interactive visualization tools into a distributed grid environment; the convergence of visualization tools with computational resources, data sources, and advanced instruments; and scalable information visualization and display techniques. Many of my novel contributions extend from the tenant that complex visualization environments can be significantly improved by thoughtfully constraining the interaction parameter space for the user.

PROFESSIONAL EXPERIENCE

University Information Technology Services (UITS), Indiana University

Senior Manager & Scientist for Visualization Technologies and Futures, UITS
(April 2006 – present)
Responsible for providing strategic leadership for the eight-campus Indiana University system in the area of advanced visualization, including setting university-wide strategy for visualization, strategic management of UITS visualization facilities, and providing direction to the manager of the Advanced Visualization Lab and other senior visualization-related positions within UITS. Lead UITS efforts in outreach, public education, and development of a 21st-century workforce. Perform independent research and development in the area of advanced visualization. Identify and pursue external funding opportunities. Establish strategic partnerships with external entities, including other academic labs and support groups, technology vendors, and corporate clients. Serve as one of three senior leaders in the Research Computing division of UITS.

Director, Advanced Information Technology Core, Indiana University School of Medicine
(January 2007 – present)
Responsible for providing oversight and vision for this IU School of Medicine (IUSM) service core. The Advanced IT Core provides a virtual interface for IUSM researchers into the systems and services offered by the Research Computing division of UITS. (In recent years, IUSM research has accounted for over 60% of IU's external research funding.) The core's mission is to support aspects of research in medicine, genomics, bioinformatics, and medical informatics within IUSM that depend heavily on computation, data management, visualization, and novel IT solutions. Responsibilities include leading division-wide efforts to enable the storage and processing of protected health information (PHI) on Research Computing systems through auditing and establishing standard policies and operating procedures.

Acting Associate Director, UITS Research & Academic Computing Division
(April 2005 – March 2006)
In an interim role, served as one of two co-leaders in providing a comprehensive response to the research and academic computing needs of the Indiana University system. Provide guidance and leadership for the Bloomington and Indianapolis campuses in the coordination of services, staff supervision and development, operational management, policy establishment and communication, and technology development and integration. Provide a leadership role on university-wide committees involving research and academic computing and information systems. Provide direction and expertise in research and academic technology development, technology acquisition and integration. Direct oversight of four management groups with 35 full-time staff with combined budgets of over $2.1M. Act as an advisor to the Associate VP and other executive staff on issues concerning the research and academic information systems needs of the Bloomington, Indianapolis, and regional campuses.

Senior Scientist & Manager, UITS Advanced Visualization Laboratory
(2001-2005)
Led lab expansion from 4 to 7.5 staff FTEs during this period, with a combined operational budget of $680,000. Collaborated in the development of the John-e-Box – a portable, large format passive stereo display – that was licensed to and produced by an Indianapolis company. The John-e-Box enabled the lab to extended the reach of advanced visualization and engage in significant outreach initiatives. Ten systems were deployed, including systems at IU East in Richmond, IN, and IU Northwest in Gary, IN. Led the design, implementation, and integration of two new major facilities at Indiana University – Purdue University Indianapolis (IUPUI) in 2004-05 with a total investment of $1,512,000. Guided the lab's participation in the implementation of three major, division-wide grants during this period. The INGEN Initiative, funded by the Lilly Endowment, led to the addition of 1.5 FTEs and significant new in-depth consultations with the IU School of Medicine, including participation in an NIH-funded collaboration to use 3D facial imaging to improve diagnosis of fetal alcohol spectrum disorders. The AVIDD project, funded by the NSF, enabled the purchase and deployment of eight John-e-Box systems. The TeraGrid project, also funded by the NSF, has resulted in deep investigations into methods that enable effective visualization across distributed cyberinfrastructures.

Acting Manager & Senior Research Programmer, UITS Advanced Visualization Lab
(1999-2001)
Responsible for leading the lab's transition from a singular virtual reality focus to a more encompassing "advanced visualization" focus. Led efforts to integrate staff and activities on the IUB and IUPUI campuses. Planned and oversaw implementation of $200,000 investment in new mid-range technologies including large-format passive stereo displays, real-time rendering clusters, collocated haptic displays, ultra-high-definition monitors, dedicated volume-rendering hardware, and advanced teleconferencing systems.

Senior Research Programmer & Team Leader, UITS Virtual Reality / Virtual Environments Lab
(1997-1999)
Assisted with the lab space design, preparation work, installation, and technology debugging of two immersive virtual reality systems: a CAVE at IUB and an ImmersaDesk at IUPUI. Developed applications, designed and led public demonstrations, conducted user trainings and

developed user guides, developed and maintained lab Web site and graphical identity, wrote promotional material and accomplishment reports, and led lab's participation and presence at SCxy conferences. Clientele included researchers in chemistry, fine arts, marketing, interior design, astronomy, education, medicine, library sciences, and computer science.

Graphics Software Specialist, Center for Innovative Computer Applications
(1996-1997)
Responsible for extended consulting on a broad range of graphics and visualization applications for batch rendering and interactive use. Developed new applications and modules. Managed software licensing and video transfer equipment. Clientele ranged from biology to theater to kineseology to law enforcement.

School of Informatics, Indiana University, Bloomington, IN

Affiliated Faculty
(2003 – present)
Taught I590 – *Introduction to Virtual Environments* to graduate students from Informatics, Computer Science, and Telecomm. In conjunction with Dr. Laura Arns, from Purdue University, pioneered the use of the Access Grid to teach an full semester course in a distributed fashion.

Computer Science Department, Indiana University, Bloomington, IN

Assistant Adjunct Professor
(October 2006 – present)

Visiting Assistant Professor
(August 2002 – May 2003)
Taught graduate-level courses B581 – *Interactive Computer Graphics* and Y790 – *Advanced Displays, Methods, & Architectures for Graphics* during regular faculty's teaching sabbatical.

Lecturer, Computer Graphics and Virtual Reality
(1994 – 2000, part-time)
Taught B481- *Interactive Computer Graphics*, B482 – *Image Synthesis*, and B582 – *Introduction to Virtual Reality & CAVE Programming* to undergraduate and graduate classes.

Undergraduate Course Coordinator
(July 1992 – June 1996)
Served as part of a 3-person team to oversee and teach all non-major service courses in the department. Responsible for developing curriculum and laboratory material for two new courses, A107 – *Advanced Microcomputing: Programming with Applications* with distinct versions for Macintosh/Hypercard and PC/dBASE IV. Assisted with the revision and expansion of curriculum for A201 – *Introduction to Programming* as it transitioned from Pascal to C and incorporated modules on FORTRAN and COBOL programming. Assisted with the general revision and updating of A106 – *Introduction to Computers and Computing.* Taught lectures for all of the above courses (A201 and A106 lectures averaged 250 students per semester.) Coordinated associate instructors (graduate assistants) for laboratory teaching and grading. Responsible for all aspects of course evaluation, and for developing course packets and Web sites.

Associate Instructor
(August 1989 – June 1992)
Responsible for lesson planning, teaching, and grading of established microcomputer applications laboratories for large service course A200 – *Introduction to Computers and Computing*. Planned and taught C481 – *Interactive Computer Graphics* in several summer sessions.

Saint Xavier High School, Louisville, KY

Mathematics and Computer Science Teacher
(June 1985 – July 1989)
Responsible for lesson planning, teaching, grading, and evaluation for established mathematics curriculum. Courses taught include: Algebra I (honors & standard), Geometry, and Algebra II. Assisted in the curriculum development, lesson planning, teaching, and evaluation of basic and advanced programming classes, including: BASIC Programming, FORTRAN Programming, Pascal Programming, Data Structures in Pascal (AP College Credit class). Managed bookstore; developed book sales and inventory system; coached a variety of academic teams.

COURSES TAUGHT (UNIVERSITY LEVEL)

Introduction to Virtual Environments – I590, School of Informatics, IUB. Spring 2004 (Taught telecollaboratively via the Access Grid with Laura Arns, Ph.D. from Purdue University.)

Advanced Displays, Methods, & Architectures for Graphics – Y790, Computer Science Department, IUB. Spring 2003

Interactive Computer Graphics – B581, Computer Science Department, IUB, Fall 2002

Introduction to Virtual Reality & CAVE Programming – B582, Computer Science Department, IUB. Spring 2000

Interactive Computer Graphics – B481/C481, Computer Science Department, IUB. Fall: 1994, 1996, 1998, Summer: 1990, 1991, 1992

Image Synthesis – B482, Computer Science Department, IUB. Spring: 1995, 1996

Introduction to Programming – A201 (C/COBOL and C/FORTRAN versions) – Computer Science Department, IUB. Fall: 1992, 1993, Spring: 1994, 1995.

Advanced Microcomputing – Programming with Applications – A107 (HyperCard & dBASE IV versions) – Computer Science Department, IUB, Spring: 1993, 1994, 1995, Fall: 1994

Introduction to Computers and Computing – A106, Computer Science Department, IUB. Fall: 1992, 1994

PUBLICATIONS

Rogers, J., E. Wernert, E. Moore, R. Ward, L. Flury-Wetherill, T. Fouroud, "A Multinational Deployment of 3D Laser Scanning to Study Craniofacial Dysmorphology in Fetal Alcohol Spectrum Disorders", *SPIE Electronic Imaging Symposium – Videometrics IX (SPIE Volume 6491),* San Jose, CA, January 2007.

Arns, L., E. Wernert, C. Cruz-Neira, "The Access Grid in a Multi-Campus Live Lecture Environment: Collaborative Graduate Courses at Purdue University, Iowa State University, and Indiana University", *Proceedings of E-Learn 2006*, Honolulu, Hawaii, October 2006.

Lakshmipathy, J. W. L. Nowinsky, E. A. Wernert, "Template Based Isocontouring", *International Journal of Image and Graphics*, vol. 6, no. 2, 187-204, April 2006.

Fu, C. W., A. J. Hanson, E. A. Wernert, "Navigation Techniques for Large-Scale Astronomical Exploration", *SPIE Electronic Imaging Symposium – Visualization and Data Analysis,* San Jose, CA, January 2006.

Wernert, E. A., M. J. Boyles, J.N. Huffman, J.L. Rogers, J. C. Huffman, C. A. Stewart, "The John-e-Box: Fostering Innovation, Inclusion, and Collaboration through Accessible Advanced Visualization", *Tapia 2005,* Albuquerque, NM, October 2005.

Wernert, E. A., and Lakshmipathy, J., "PViN – A Scalable and Flexible System for Visualizing Pedigree Databases", *Proceedings of SAC 2005 – ACM Symposium on Applied Computing*, Santa Fe, NM, March 2005.

Lakshimpathy, J., W. L. Nowinsky, E. A. Wernert, "A Novel Approach to Extract Triangle Strips for Iso-surfaces in Volumes", *VRCAI 2004, ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Application in Industry*, Singapore, June 2004.

Stewart, C. A., R. Repasky, D. Hart, M. Papakhian, A. Shankar, E. Wernert, A. Arenson, and G. Bernbom, "Advanced Information Technology Support for Life Sciences Research." *Proceedings of SIGUCCS 2003*, San Antonio, TX. September, 2003.

Hanson A. J., Chi-Wing Fu, and E. A. Wernert, "Visualizing Cosmological Time", *Proceedings of Dagstuhl 2000*, 21-26 May 2000, Dagstuhl, DE, 2002.

Stewart, C.A., D. Hart, D. K. Berry, G. J. Olsen, E. A. Wernert, W. Fischer, "Parallel Implementation and Performance of fastDNAml – A Program for Maximum Likelihood Phylogenetic Inference", *Proceedings of Supercomputing 2001*, Denver, CO, November 2001.

Hanson, A. J., Chi-Wing Fu, and E. A. Wernert, "Very Large Scale Visualization Methods for Astrophysical Data", *Data Visualization 2000*, pages 115-124, 2000. Proceedings of the Joint Eurographics and IEEE TVCG Symposium on Visualization, May 29-31, 2000, Amsterdam, the Netherlands; Springer-Verlag.

Stewart, C.A., T.W. Tan, M. Buckhorn, D. Hart, D. K. Berry, L. Zhang, E. Wernert, M. Sakharkar, W. Fischer, and D.F. McMullen. "Evolutionary biology and high performance computing." In R.F. Enenkel editor, *Software Tools for Computational Biology, CASCON 2000*, Toronto, November 2000.

Wernert, E. A. and A. J. Hanson, "A Framework for Assisted Exploration with Collaboration", *Proceedings of IEEE Visualization '99*, pages 241-248. IEEE Computer Society Press, 1999.

Hanson, A. J., E. A. Wernert, and S. B. Hughes, "Constrained Navigation Environments", *Scientific Visualization: Dagstuhl '97 Proceedings*, pages 95-104. IEEE Computer Society Press, 1999.

Hanson, A. J. and E. A. Wernert "Image-Based Rendering with Occlusions via Cubist Images", *Proceedings of IEEE Visualization '98*, pp. 327-334, 1998.

Hanson, A. J. and E. A. Wernert, "Constrained 3D Navigation with 2D Controllers", Proceedings of IEEE Visualization '97, pp. 175-182, 1997.

Wernert, E. A.. "A Unified Environment for Presenting, Developing, and Analyzing Graphics Algorithms", *Computer Graphics (ACM SIGGRAPH)* 31(3), pp. 26-28, August 1997.

POSTERS & POSTER PAPERS

Lakshmipathy, J., J. N. Huffman, M. J. Boyles, E. A. Wernert, D. K. Berry, "Visualization of Nuclear Pasta", *Proceedings of IEEE Visualization 2006 – Poster Session*, Baltimore, MD, October 2006.

Lakshmipathy, J. and E. A. Wernert, "PViN: a Scalable and Flexible System for Visualizing Pedigree Databases." I-Light Symposium 2005, IUPUI, September 2005.

Rogers, J. L. and E. A. Wernert, "Developing and Deploying a Robust System for 3D Surface Scanning and Analysis." I-Light Symposium 2005, IUPUI, September 2005.

Boyles, M. J. and E. A. Wernert. "Advanced Displays for GIS Applications", at Indiana GIS Conference, Indianapolis, Indiana, February 25-26, 2004.

Wernert, E. A., D. K. Berry, J. N. Huffman, C. A. Stewart, "Tree3D - A System for Temporal and Comparative Analysis of Phylogenetic Trees", *Proceedings of IEEE Information Visualization 2003 – Interactive Poster*, Seattle, WA, October 2003.

Arenson, A., M. Papakhian, R. Repasky, and E. Wernert, "Biomedical Applications over I-Light", poster session at I-Light Symposium 2002, December 4, 2002.

Wernert, E. A. and A.J. Hanson. "Tethering and reattachment in collaborative virtual environments" In *Proceedings of Virtual Reality 2000*, page 292. IEEE Computer Society Press, 2000.

TECHNICAL REPORTS

Hanson, A. J. and E. A. Wernert, "Constrained 3D Navigation with 2D Controllers" Indiana University Department of Computer Science Technical Report 479, March 1997.

MEDIA – PUBLISHED OR PUBLICLY PRESENTED

Northern cardinal vocal tract visualization animation. Supporting material for T. Riede, R. Suthers, N. Fletcher, and W. Blevins, "Songbirds tune their vocal tract to the fundamental frequency of their song", *Proceedings of the National Academy of Sciences (PNAS)*, 103 (14), pp. 5543-5548, March 27, 2006.

Heliosphere flyby sequence for 5-minute *Solar Journey* animation, April 2001. On display at the Beijing Planetarium, Beijing, China and the Adler Planetarium, Chicago, IL.

Still image from Heliosphere sequence, appeared as Astronomy Picture of the Day, June 24, 2002 and in Science Magazine, p. 2005, Vol. 300, June 27, 2003.

Cover imagery for *Proceedings of IEEE Visualization '99*, October 1999.

"Image-Based Rendering via Cubist Images", computer animation in Video Proceedings of *IEEE Visualization '98*, 1998.

Cover imagery for *Proceedings of IEEE Visualization '98*, October 1998.

"Constrained Navigation", computer animation in Video Proceedings of *IEEE Visualization '97*, 1997.

Cover imagery for *Computer Graphics (ACM SIGGRAPH)*, August 1997.

PRESENTATIONS & DEMONSTRATIONS

E. A. Wernert, "Advanced Information Technology Core – an Overview of Systems, Services, and Successes", IU School of Medicine Dean's Executive Committee, February 2007 & Indiana Genomics Initiative – Operations Committee Meeting, March 2007.

E. A. Wernert, "Advanced Visualization for Education – Applications from College to Middle School", Indiana Middle Level Education Association – State Conference, Indianapolis, IN, February 2007.

E. A. Wernert, "A Multinational Deployment of 3D Laser Scanning to Study Craniofacial Dysmorphology in Fetal Alcohol Spectrum Disorders", *SPIE Electronic Imaging Symposium – Videometrics IX*, San Jose, CA, January 2007, *Paper Presentation*

E. A. Wernert, "Managing Data to Large Numbers of Projectors – Applications for Theater Lighting" at Virtual Sceneography and Live Performance Workshop, Indiana University, March 2006, *Invited Presentation*

E. A. Wernert, "Advanced Visualization Applications and Resources at IU" at IU ResearchWorks Booth, IEEE SC05 Conference, Seattle, WA, November 2005, *Work Presentation.*

E. A. Wernert and M. J. Boyles, "The John-e-Box: Enabling Scientific Research and Outreach at IU", demonstrations at the Coalition for National Science Funding annual event, Washington D.C., June 21, 2005, *Invited Demonstration.*

E. A. Wernert, "PViN: A Scalable and Flexible System for Visualizing Pedigree Databases", *ACM Symposium on Applied Computing*. Santa Fe, NM, March 2005, *Paper Presentation.*

E. A. Wernert. "An Overview of Biomedical Visualization Resources and Projects at IU", IU Medical Science Seminar Series, December 2004, *Invited Presentation.*

E. A. Wernert., "VRML, Java, and Virtual Reality", Java Engagement for Teacher Training (JETT) Workshop, November 6, 2004, *Invited Presentation*.

E. A. Wernert and J. A. Wernert, "The John-e-Box: Affordable Advanced Visualization for Research and Education", demonstrations at the NSF ESTME (Excellence in Science, Technology, and Mathematics Education) Showcase, Washington D.C., March 16, 2004, *Invited Demonstration.*

E. A. Wernert, "Methods for Network-based Visualization", I-Light Symposium 2004, IUPUI, March 9, 2004, *Invited Presentation*.

L. Arns and E. A. Wernert, "Introduction to Virtual Environments – A Collaborative Classroom Offering between PU and IU", I-Light Symposium 2004, IUPUI, March 9, 2004, *Invited Presentation.*

E. A. Wernert, J. N. Huffman, M.J. Boyles, et al. "Advanced Visualization Applications" at Research in Indiana Booth, IEEE SC03 Conference, Phoenix, AZ, November 2003, *Work Presentation*

E. A. Wernert, "Tree3D – A system for temporal and comparative analysis of phylogenetic trees", *IEEE InfoVis 2003*, Seattle WA, Oct. 19-24, 2003, *Interactive Poster Presentation.*

E. A. Wernert, "Advanced Applications on Advanced Displays", Advanced Display Environments Workshop, Artic Region Supercomputing Center, Fairbanks AL, August 2003, *Invited Presentation.*

E. A. Wernert, "An Overview of Visualization Resources at IU", Center for Genomics and Bioinformatics, May 2003, *Work Presentation*.

E. A. Wernert, J. Lakshmipathy, et al. "Advanced Biomedical and Scientific Visualization Applications" at Research in Indiana Booth, IEEE SC02 Conference, Baltimore, MD, November 2002, *Work Presentation*.

E. A. Wernert, "Virtual Reality Methods for Medical Education" Learning Resource Center Conference, IU School of Nursing, April 2002, *Invited Presentation.*

E. A. Wernert, "Overview of Visualization and Tele-Collaboration Technologies", Brown Cancer Center, University of Louisville. March 2002, *Invited Presentation.*

E. A. Wernert, I-Light network launch. (Custom tele-collaborative visualization demonstration permitting synchronous viewing of CT data isosurfaces between IUB, IUPUI, and Purdue; developed in conjunction with Virtual Director group at NCSA using data provided by Dr. Gary Hutchins.) December 2001. *Work Presentation*.

E. Wernert and J. N. Huffman, Demonstrations of high-resolution displays and large-format stereo displays and their application to life sciences, Supercomputing 2001 Research@Indiana booth, Denver CO, November 2001. *Work Presentation*.

E. Wernert, J. Barclay, and M. Rasmussen, "Distance Learning Demonstration." Demonstration of tele-collaborative anatomical applications for Indiana Distance Learning Consortium event, November 2001. *Work Presentation.*

E. A. Wernert and A. J. Hanson, "Tethering and Reattachment in Collaborative Virtual Environments", Collapsing Time and Space: A High Performance Network Applications Symposium, IUPUI, April 6, 2001, *Invited Presentation.*

E. A. Wernert, "Eyes On the Future: Advanced Visualization" UITS IT Seminar Series, March 6-7, 2001, *Invited Presentation.*

E. A. Wernert, "Constrained Navigation for Individual and Collaborative 3D Environments", IUPUI Computer Science Department Colloquium, December 2000, *Invited Presentation.*

E. Wernert and J. N. Huffman, Demonstrations of Immersive VR applications. Supercomputing 2000 Research@Indiana booth, November 2000. *Work Presentation*.

E. A. Wernert and A. J. Hanson, "A Framework for Assisted Exploration with Collaboration", *IEEE Visualization '99*, San Francisco, CA, October 1999. *Paper Presentation.*

E. A. Wernert and A. J. Hanson "Image-Based Rendering with Occlusions via Cubist Images", *IEEE Visualization '98*, Research Triangle Park, NC, October 1998, *Paper Presentation*.

GRANTS

National Science Foundation – Office of CyberInfrastructure. TeraGrid Resource Partners: Indiana University (SCI-0525787), Co-PI, 2005-2010. ($4,414,947)

National Science Foundation – ITR Information Integration. NetWorkBench: A Large-Scale Network Analysis, Modeling, and Visualization Toolkit for Biomedical, Social Science, and Physics Research (ITR 0513650), Senior Personnel, 2005-2008. ($1,120,926)

National Institutes of Health – National Institute on Alcohol Abuse and Alcoholism. A Cross-Cultural Longitudinal Assessment of Fetal Alcohol Spectrum Disorders (U24 Core), Co-investigator, 2003-2006. ($758,737)

High Performance Network Applications Program at Indiana University, *Constrained Navigation for Collaborative 3D Exploration*, Co-PI, 1999. ($20,000)

AWARDS & HONORS

Team member, HPC Challenge Award for the Most Geographically Distributed Application**:** "Global Analysis of Arthropod Evolution," during SC2003 Conference, Phoenix, AZ, November 2003.

Team member, Best Industrial Collaboration Award in the High Performance Computing Challenge during the conference IEEE SC98 (Super Computing '98), Orlando, Florida, USA, November 1998.

College of Arts and Sciences Fellowship - Indiana University, 1989-90

NASA Educational Workshop for Math and Science Teachers - NASA Langley Research Center, 1988

Faculty Merit Award in Education- Bellarmine College, 1985

Award for Excellence in Math and Science - Bellarmine College, 1985

Archbishop's Medal for Highest Academic Achievement - Bellarmine College, 1985

Presidential Scholarship - Bellarmine College, 1981-85

PROFESSIONAL ACTIVITIES

Grant Reviewer, National Science Foundation

Chair, I-Light 2005 Symposium, Indiana University & Purdue University

Steering Committee Member, International Visualization Consortium

Paper Reviewer, IEEE Information Visualization Symposium

Paper Reviewer, IEEE Supercomputing Conference

PROFESSIONAL MEMBERSHIPS

Association of Computing Machinery – Special Interest Group in Graphics (SIGGRAPH)

IEEE Computer Society

International Society for Optical Engineering (SPIE)